A7350-1.15
6/24

• business flying

NATIONAL
BUSINESS AIRCRAFT
ASSOCIATION, INC.

Business Aviation Statistics... PAST, PRESENT & FUTURE

Introduction

A lot has happened and a lot is happening to General Aviation and that segment of general aviation to which members of National Business Aircraft Association (NBAA) belong—business aviation.

In the past three years and more two major factors have disrupted the system: the consequences of the air traffic controllers strike and a severe recession.

"Trends in the overall economy are creating major changes within general aviation. Over the past several years, general aviation has become increasingly important as a means of transportation for business use. Events which have contributed to this are changes in tax legislation, business dispersion and centralized management, changing air carrier route structures, and lower costs relative to competing modes. The aircraft purchased by businesses tend to be the larger more sophisticated types which are intensive users of the air traffic control system.[1]"

How have these and other lesser factors affected the long term trends of business aviation? Is there a long term change in the relationship between business aviation and the rest of general aviation? Is there a change in the relationship between general aviation and the rest of the aviation industry?

This issue of "Business Flying" addresses some of these overall statistics and trends—past, present and future. Statistics are based largely on Federal Aviation Administration and NBAA surveys and projections.

This issue departs slightly from previous issues to include more forecast statistical data. One source for these data is the FAA Aviation Policy Office (APO) Forecast for the Years 1984 to 1995. Charter for the APO is the forecasting of future aviation activity so that the FAA can plan to meet projected workloads. Trends should be apparent to the business aviation planner from this information. Because of space requirements, tables are projected only five years.

Other sources of data are the FAA Statistical Handbook of Aviation—Calendar Year 1982 and the General Aviation Activity and Avionics Survey—1982.

Note: In some cases the data, which are based on surveys and findings from different departments of the FAA, are calculated from the first day of a year—January 1, and in some cases the data are calculated from the last day of the year—December 31. Look at each chart carefully for the actual date. Do not be confused. January 1 is just one day, not one year away from December 31. A chart where the data are labeled January 1, of a given year is actually presenting a summary of data from the previous year.

For example, the tables on page 4, "Estimated Active Aircraft by Type—Historical and Forecast" lists the data as of January 1; "Active General Aviation Aircraft by Type and Primary Use" lists data as of December 31, 1982.

Further, some of the data are listed under the federal fiscal year. The fiscal year starts on October 1. The federal fiscal year of 1984 started on October 1, 1983.

This is opposed to some data which are listed by calendar year. In most cases the calendar year is 1982.

[1]FAA APO Aviation Forecasts Fiscal Years 1984-1995

Contents

Activity and Forecasts

2 Introduction
2 Contents
3 Shipments and Cycles
3 Definitions
4 Estimated Aircraft by Type—Historical & Forecast (Table)
4 Active General Aviation Aircraft by Type and Primary Use—Calendar Year 1982 (Table)
5 National Scene
5 Forecast Hours
5 Estimated Hours Flown in General Aviation by Type of Aircraft (Table)
6 Active General Aviation Aircraft Total Hours Flown by Type and Primary Use—Calendar 1982 (Table)
6 Active General Aviation Average Hours Flown by Aircraft Type—Calendar Years 1978-82 (Table)
6 General Aviation Activity Measure by Primary Use (Graph)

Avionics

7 General Aviation Avionics Equipment—1982 (Table)
7 GA Fleet Becoming More Sophisticated
8 Growth in Avionics Equipment by Type 1977-1981 (Table)
8 General Aviation Hours Flown by Weather & Light Conditions (Schematic)

Pilots

8 Active Pilots by Type of Certificate (Table)
8 Non-pilot Types (Table)

Fuel

9 Estimated Fuel Consumption by Aircraft Type—Calendar 1982 (Schematic)
9 Mean Fuel Consumption (Table)
9 Estimated General Aviation Fuel Consumption by Aircraft Type—Calendar 1982 (Table)

Airports

10 Airports on Record With FAA Calendar 1978-83 (Table)
10 Airports by Type—(Table)
10 Airports by Ownership—(Table)
10 Airports by Length of Longest Runway—Calendar 1982 (Table)

Summary

11 Aviation Activity Summary
11 Aviation Activity Forecasts (Table)
12 Airway Activity Forecasts (Table)

Shipments and Cycles

"Shipments of general aviation aircraft declined approximately 38 percent in 1983. Both single-engine and multi-engine piston aircraft deliveries fell 36 percent. Shipments of turboprop and turbojet aircraft declined 34 percent and 48 percent, respectively. Latest industry estimates indicate that 1984 production levels will show modest increases above 1983.

"The deliveries of general aviation aircraft (excluding helicopters, balloons, dirigibles, and gliders) are characterized by cycles with relatively large variability. For the period 1962 through 1983 two distinct cycles, approximately 10 years in duration, are evident. In 1962, production was at 6,697 units, climbed to a peak of 13,577 in 1967, and then fell to a low of 7,292 in 1970. The cycle during the 1970's reached a peak of 17,811 units in 1978, and then declined to approximately 2,600 in 1983. A comparison of the yearly growth rate of deliveries with that of Gross National Product, adjusted for inflation, indicates that the two rates are highly correlated. Assuming this pattern will continue in the future, sustained growth in the economy should have a significant, positive impact on the demand for general aviation aircraft.

"The industry will experience a continuation of slow growth in the general aviation fleet in the 1984-85 time period. There will be variations in the number of aircraft added to the fleet each year due in part to changes in economic conditions. However, the net addition to the fleet will average about 7,300 aircraft per year between 1984 and 1995. Active single-engine and multi-engine piston aircraft are forecast to grow approximately 2.4 percent per year. The number of turbine powered aircraft is projected to increase from 9,000 in 1983 to 18,000 in 1995, growing at the rate of 5.8 percent a year. The turbine rotorcraft fleet is also expected to show significant growth, increasing at the yearly rate of 7 percent. These new sophisticated aircraft are expected to make extensive use of FAA provided services."[1]

NBAA President John H. Winant, in an address to the FAA Annual Forecast Conference, February 23, 1984, recognized that orders for new aircraft had not picked up but expected a healthy booking of orders for new aircraft to begin in the latter part of 1984 and in some cases, 1985.

According to Winant, "the rate of sales of business aircraft is profoundly influenced by a handful of key indicators . . . the most important of which is total after-tax profit on a national basis. (It) is the most important of all indicators since it relates (to) . . . the rise and fall in monies which are available for discretionary capital goods purchases. When after-tax profit levels are high, the conditions for purchase of a business aircraft are fertile."

Despite a favorable after-tax profit figure since the second quarter of 1983, other key indicators such as the uncertainty of the economic effects of a huge anticipated deficit have tended to blunt the force of the upturn.

Winant viewed the long-term future of business aircraft optimistically. Business aviation "ranks foremost among the growth elements of the aviation world," he said. "Changing patterns in the air transportation system continue to favor the purchase and use of business aircraft. In a growing number of cases, business aircraft are the only dependable means of getting to and from smaller cities and there is attenuated awareness that the business aircraft is the best of all 'on demand' transportation alternatives. Dispersion of commercial and industrial plants and facilities, decentralization of the management function and convenience to resource raw materials add to the rationale of need. Pent up demand for business aircraft will soon burst into active demand."

[1]FAA APO Aviation Forecasts Fiscal Years 1984-1995

Definitions

General Aviation: That portion of civil aviation which encompasses all facets of aviation except air carriers.

The FAA has divided the aircraft that operate under these flight rules into eleven "primary use" categories. By definition they are as follows:

Corporate: Any use of an aircraft by a corporation, company, or other organization for the purpose of transporting its employees and/or property, but not for compensation or hire, and employing professional flight personnel for the operation of the aircraft.

Business: Any use of an aircraft, not for compensation or hire, by an individual for the purpose of transportation required by a business in which he is engaged.

Personal: Any use of an aircraft for personal purposes not associated with a business or profession, and not for hire.

Aerial Application: Consists of those activities that involve the discharge of materials from aircraft in flight.

Instructional: Any use of an aircraft for the purpose of formal instruction with the flight instructor aboard.

Aerial Observation: Any use of an aircraft for aerial mapping/photography, survey, patrol, fish spotting, search and rescue, hunting, highway traffic advisory, or sightseeing; not included under Part 135.

Commuter Air Carrier: An air taxi that performs at least five scheduled round trips per week between two or more points or carries mail.

Air Taxi: Use of an aircraft operating under Federal Aviation Regulations, Part 135, passenger and cargo operations, including charter and excluding commuter air carrier.

Other Work: Any aircraft used for construction work (not included under Part 135), helicopter, hoist, towing gliders, or parachuting.

Rental: Aircraft used primarily for short periods by airmen on which a fee is paid.

Other: Research and development, marketing and sales demonstration.

NBAA voting members are in the corporate and business category.

Estimated Active General Aviation Aircraft Historical & Forecast[1]

(thousands)

As of January 1	Total	Fixed Wing				Rotorcraft		Ballons Dirigibles Gliders
		Piston						
		Single Engine	Multi Engine	Turboprop	Turbojet	Piston	Turbine	
Historical*								
1979	198.8	160.7	23.2	3.1	2.5	2.8	2.5	4.0
1980	210.3	168.4	25.1	3.5	2.7	3.1	2.7	4.8
1981	211.0	168.4	24.6	4.1	3.0	2.8	3.2	4.9
1982	213.2	167.9	25.5	4.7	3.2	3.3	3.7	5.0
1983	209.8	164.2	25.0	5.2	4.0	2.4	3.7	5.2
Forecast								
1984	207.0	160.6	24.7	5.5	4.2	2.4	4.3	5.3
1985	211.0	162.9	25.0	6.0	4.5	2.4	4.8	5.4
1986	216.9	166.7	25.6	6.6	4.9	2.3	5.2	5.6
1987	224.5	172.0	26.5	7.1	5.2	2.3	5.5	5.9
1988	233.6	178.7	27.5	7.6	5.5	2.3	5.8	6.2

*FAA Statistical Handbook of Aviation

Detail may not add to total because of Independent rounding.

An active aircraft must have a current registration and it must have been flown at least 1 hour during the previous calendar year.

Note: Data presented as of January 1 of the given year are an accumulation from previous year.

Includes commuter aircraft as follows: 1979-1,413; 1980-1,313; 1982-1,494; 1983(E)-1,500; 1984-1,606; 1985-1,682; 1986-1,762; 1987-1,838 and 1988-1,927.

[1]FAA APO Aviation Forecasts Fiscal 1984-95

Between 1979 and 1983 General Aviation growth rate was 1.4 percent. In this same period, single-engine piston aircraft increased at a yearly rate of 0.5 percent, turbine powered fixed wing aircraft grew at a 13.2 percent rate and rotorcraft increased at a 3.6 percent rate. The total General Aviation fleet declined 1.7 percent in 1983 but the turbine powered fleet—largely made up of the business aircraft segment—experienced significant growth 16 percent. The FAA/APO Aviation Policy office predicts that the short term growth of the general aviation fleet will be lower than it was in the 1970's, the long term growth prospects suggest a sustained growth closer to historical levels. (*FAA APO Aviation Forecasts Fiscal 1984-1995*).

Active General Aviation Aircraft, by Type and Primary Use Calendar 1982[1]

Aircraft Type	Total	Corporate	Business	Personal	Instructional	Aerial Application	Aerial Observation	Other Work	Commuter Air Carrier	Air Taxi	Rental	Other
Fixed-Wing—Total	198,377	14,497	47,508	90,961	13,634	6,362	3,350	1,261	1,070	6,824	9,435	3,470
Piston—Total	**189,195**	**8,115**	**46,707**	**90,882**	**13,634**	**6,261**	**3,324**	**1,256**	**711**	**5,932**	**9,401**	**2,969**
One-Engine	154,173	2,731	36,857	87,305	13,083	5,943	3,003	1,187	212	2,819	9,062	1,970
Two-Engine	24,882	5,380	9,847	3,573	551	267	315	66	477	3,109	326	965
Turboprop	**5,186**	**3,327**	**670**	**32**	**0**	**101**	**26**	**6**	**296**	**499**	**34**	**295**
Turbojet	**3,996**	**3,054**	**231**	**47**	**0**	**0**	**0**	**0**	**63**	**393**	**0**	**207**
Rotorcraft—Total	**6,169**	**1,239**	**352**	**486**	**457**	**793**	**715**	**300**	**0**	**1,227**	**29**	**571**
Piston	2,419	190	201	356	379	677	352	51	0	43	3	168
Turbine	3,749	1,048	151	130	78	116	364	249	0	1,184	26	403
Other—Total	**5,233**	**4**	**13**	**3,373**	**616**	**0**	**98**	**172**	**0**	**71**	**380**	**505**
Total All Aircraft	**209,799**	**15,739**	**47,873**	**94,820**	**14,708**	**7,155**	**4,164**	**1,733**	**1,070**	**8,122**	**9,844**	**4,546**

Note: Row and column summation may differ from printed totals due to estimation procedures.

[1]General Aviation Activity and Avionics Survey—Calendar 1982

Business aircraft category ("Corporate" plus "Business" columns) in this recession year was 63,612 or 2,686 less aircraft than 1981.

"Industry sources indicate that approximately 90 percent of the sales of general aviation jet aircraft are intended for business/corporate use. Approximately 80 to 85 percent of the turboprop aircraft and about 60 to 70 percent of the multi-engine piston aircraft are purchased for business use. Less than 30 percent of the single-engine piston aircraft are sold for business purposes. However, the percentage of single-engine piston aircraft sales intended for business use has increased from about 10 percent in 1969 to approximately 25 percent in 1978, while the percentage of single-engine aircraft purchased for personal use has declined from 42 percent to 34 percent, and instructional use from 27 percent to 17 percent during this period." (*FAA APO Aviation Forecasts Fiscal 1984-1995*)

BEST AVAILABLE COPY

National Scene

"During 1982 an estimated 36.5 million hours of flying time were logged by the 209,779 active general aviation aircraft in the U.S. fleet, yielding a mean annual flight time per aircraft of 174 hours. These aircraft comprised 82 percent of the registered general aviation fleet. The statistics for 1982 showed a 10.3 percent decrease in flying hours, a 1.6 percent decrease in the number of active aircraft in the general aviation fleet, and a 7.5 percent decrease in mean hours per aircraft over the comparable figures for 1981.

Activity estimates for 1982 indicated an overall slowing in the growth of general aviation activity. The decrease seen in hours flown can most likely be attributed to the decline in the economy and rising aircraft operational costs.

General aviation operations at FAA towered airports decreased by 16.6 percent from 1981 to 1982. Some of this decrease may be attributed to the air traffic controller strike which occurred during 1982." (*General Aviation Activity and Avionics Survey—Calendar 1982*)

Forecast Hours

"Growth over the entire forecast period for general aviation hours flown is expected to average 4.0 percent per year, resulting in an estimated 45.9 million hours flown in 1988. For the same period, turbine powered aircraft hours flown are forecast to grow 5.0 percent per year, and turbine rotorcraft hours flown 6.0 percent." (*FAA AFO Aviation Forecasts Fiscal 1984-1995*)

Estimated Hours Flown in General Aviation by Type of Aircraft[1]

(millions)

		Fixed Wing				Rotorcraft		
		Piston						
Fiscal Year	Total	Single Engine	Multi Engine	Turboprop	Turbojet	Piston	Turbine	Ballons Dirigibles Gliders
Historical*								
1979	42.3	29.7	6.8	1.8	1.2	.9	1.6	.3
1980	41.6	28.8	6.6	2.1	1.3	.8	1.6	.4
1981	41.0	27.9	6.4	2.2	1.5	.9	1.8	.4
1982	37.8	25.2	6.0	2.1	1.6	.7	1.8	.4
1983E	36.6	23.8	5.8	2.2	1.7	.6	2.1	.4
Forecast								
1984	37.6	24.1	6.0	2.4	1.8	.6	2.3	.4
1985	39.1	24.9	6.2	2.6	1.9	.6	2.5	.4
1986	41.1	26.1	6.4	2.8	2.1	.5	2.7	.5
1987	43.3	27.7	6.6	3.0	2.2	.5	2.8	.5
1988	45.9	29.7	6.8	3.2	2.2	.5	3.0	.5

E—Estimate
*FAA Statistical Handbook of Aviation
Detail may not add to total because of independent rounding.
[1]FAA APO Aviation Forecasts Fiscal 1984-1995

"Total general aviation hours flown in fiscal 1982 was 37.8 million hours, down 7.8 percent from fiscal 1981. Single-engine piston aircraft accounted for 66 percent of all hours flown, multi-engine aircraft for 16 percent, turbine powered aircraft for 10 percent, and rotorcraft for 7 percent. The single-engine piston aircraft hours flown declined 9.7 percent in 1982, while turbine powered aircraft hours increased 3 percent, and rotorcraft hours decreased 7.4 percent. During the period 1979 through 1982, single-engine piston aircraft hours flown declined at a yearly rate of 5.3 percent, turbine powered aircraft hours grew at a 7 percent rate, rotorcraft hours flown remained relatively stable, and total hours flown declined at a yearly rate of 4 percent." (*FAA APO Aviation Forecasts Fiscal 1984-1995*)

Active General Aviation Aircraft Total Hours Flown, by Aircraft Type and Primary Use Calendar 1982[1]

Aircraft Type	Total	Corporate	Business	Personal	Instructional	Aerial Application	Aerial Observation	Other Work	Commuter Air Carrier	Air Taxi	Rental	Other
Fixed-Wing—Total	33,728,012	4,530,785	6,[illegible]02,477	7,976,705	4,691,665	1,844,909	941,610	308,335	1,086,012	2,478,246	2,875,469	339,164
Piston—Total	29,949,634	2,163,227	6,[illegible]3,406	7,954,371	4,691,665	1,789,622	930,425	306,674	675,204	1,995,757	2,859,728	241,444
One-Engine	24,259,126	563,842	4,960,256	7,552,369	4,507,382	1,737,376	858,509	278,730	127,214	882,639	2,796,676	135,963
Two-Engine	5,657,113	1,596,558	1,605,233	402,401	183,911	40,803	70,492	30,243	535,981	1,112,671	52,661	102,694
Turboprop	2,167,542	1,178,724	152,144	3,600	0	62,527	11,214	1,734	397,740	254,217	15,620	53,633
Turbojet	1,610,836	1,198,247	84,594	18,512	0	0	0	0	33,628	228,342	0	47,595
Rotorcraft—Total	2,350,231	455,683	58,798	25,084	125,411	196,087	313,131	147,917	0	721,241	33,786	280,941
Piston	579,057	24,728	26,029	16,135	92,852	169,382	129,394	14,224	0	9,072	824	93,082
Turbine	1,771,174	430,956	32,379	8,859	32,773	26,790	181,828	133,509	0	709,381	32,299	188,538
Other—Total	378,700	627	536	178,766	101,470	0	6,345	14,109	0	2,088	50,759	25,125
Total All Aircraft	36,456,943	4,983,218	6,861,454	8,182,195	4,924,049	2,043,005	1,255,775	467,294	1,086,012	3,187,468	2,961,319	637,975

Note: Row and column summations may differ from printed totals due to estimation procedures.
[1]*FAA Statistical Handbook of Aviation—Calendar Year 1982*

"In calendar 1982, personal and instructional use accounted for 36 percent of all hours flown, and business and corporate use for 32 percent. In 1970 personal and instructional use accounted for over 50 percent of all hours flown, and business and corporate for only 28 percent. Between 1970 and 1982 the use of general aviation for business grew at a 6 percent yearly rate." (*FAA APO Aviation Forecasts Fiscal 1984-1995*)

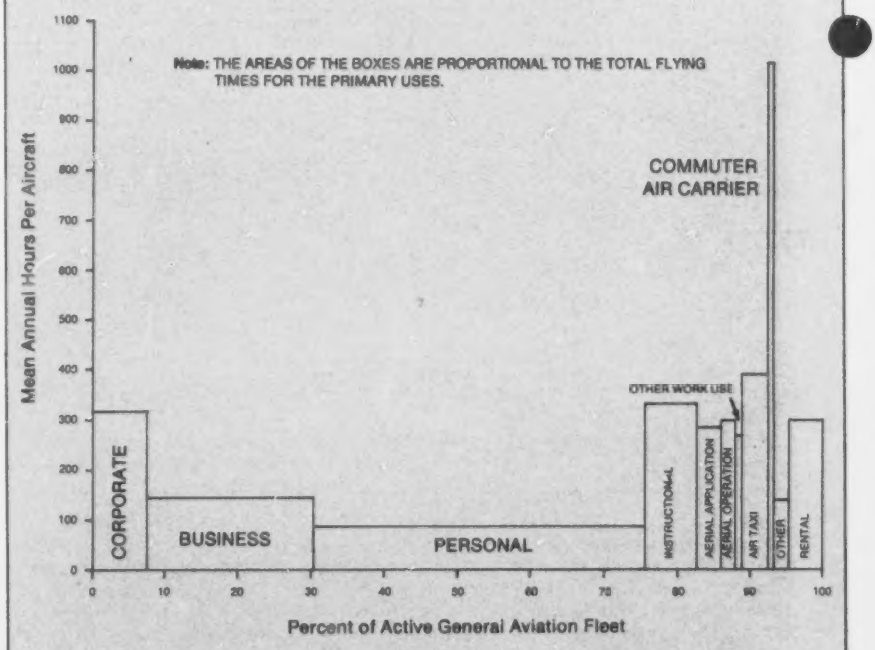
Active General Aviation Aircraft Average Hours Flown, by Aircraft Type 1978-1982[1]

Calendar Years	1982	1981	1980	1979	1978
Fixed-Wing—Total	170.6	184.4	187.7	200.2	193.7
Piston—Total	159.8	175.4	178.2	191.8	184.3
One Engine	149.1	165.8	168.2	180.2	172.4
Two Engine	230.6	251.1	254.8	273.2	263.7
Turboprop	396.3	470.1	433.4	511.7	509.2
Turbojet	404.0	436.3	443.6	473.2	475.2
Rotorcraft—Total	383.2	390.8	382.4	433.5	422.1
Piston	236.8	285.3	262.9	284.3	285.6
Turbine	474.2	489.5	497.7	609.3	571.0
Other—Total	72.4	78.4	75.0	72.7	83..
Total All Aircraft	174.0	188.1	190.5	203.5	197.7

[1]*FAA Statistical Handbook of Aviation—Calendar 1982*

"Turbojet aircraft flew a mean of 404 hours during 1982, more than any other aircraft type. This marks a deviation from prior years, when turboprops flew the highest level of mean hours per aircraft. Turboprop aircraft were second this year, with a mean of 396 hours." (*General Aviation and Avionics Survey—Calendar 1982*)

1982 General Aviation Activity Measure by Primary Use[1]



[1]*General Aviation and Avionics Survey—Calendar 1982*

BEST AVAILABLE COPY

Avionics

Over 84 percent of the general aviation aircraft had two-way VHF communication equipment, 64 percent were equipped with 4096-code transponders, about 56 percent had at least one component of an instrument landing system, and 80 percent had some form of navigation equipment.

An estimated 24.5 percent of general aviation aircraft had avionics equipment enabling them to fly above 18,000 feet in positive controlled airspace. Approximately 68.4 percent of the GA fleet could not fly above 12,500 feet due to avionics limitations alone.

An estimated 42 percent of the active general aviation fleet flew by instrument flight rules (IFR) at some time during calendar 1982.

General Aviation Avionics Equipment
1982[1]

	VHC Communications				Transponder Equipment				ILS Receiving Equipment			
	360 CH	720 CH	2+ SYS	NO COMM	4096 CODE	ALT ENC	NO TRANS	LOC	MKER BEC	GLIDE SLOPE	MLS	NO ILS
TOTAL												
Estimated Inventory	117951	111167	126063	40637	163384	80658	91980	138389	125585	112317	1166	111737
Estimated % of GA Aircraft	46.2	43.5	49.4	15.9	64.0	31.6	36.0	54.2	49.2	44.0	0.5	43.8

	Navigation Equipment										
	VOR 100CH	VOR 200CH	2+ RCVR	ADF	DME	RNAV	LRNAV	FLT DIR	RADAR ALT	FLTMGT COMPTR	NO NAVEQ
Estimated Inventory	87749	124679	131906	128829	79437	28375	4871	22668	18018	4004	50822
Estimated % of GA Aircraft	34.4	48.8	51.7	50.4	31.1	11.1	1.9	8.9	7.1	1.6	19.9

[1]*General Aviation and Avionics Survey—Calendar 1982*

GA Fleet Becoming More Sophisticated

"The general aviation fleet is becoming more sophisticated in terms of its avionics equipment. Within two-way communications, between 1977 and 1982, there was a significant shift from 360 channel to 720 channel equipment. In transponder equipment, there was a substantial increase in the percentage of the general aviation aircraft containing 4096 code transponders and altitude encoding equipment, while the percentage of aircraft containing no transponder equipment declined considerably over the five year period. In VOR receivers there was a shift from 100 channel to 200 channel equipment.

"The proportion of the general aviation fleet with transponders increased from 53.3 percent in 1978 to 64 percent in 1982, and the proportion with at least one part of an ILS increased from 51.0 percent to 56.2 percent. The proportion of aircraft having two or more communications systems increased by more than 7.2 percent from 1978 to 1982. The proportion with two or more VOR receivers increased by 6.1 percent over the same five year period." (*General Aviation Activity and Avionics Survey—Calendar 1982*)

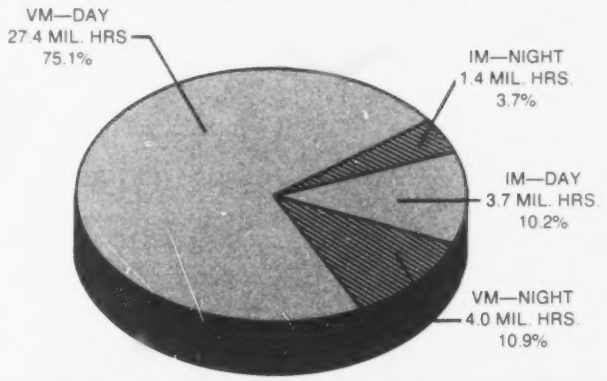
Percent Growth in Avionics Equipment by Aircraft Type 1977-1981[1]

Aircraft Type	Fleet Population Growth Rate	Avionics Equipment Growth Rates			
		Communications	Transponders	ILS	Navigation
Piston	19	19	46	31	21
Rotorcraft	39	33	42	118	76
Turboprop	64	59	58	61	46
Turbojet	48	43	44	45	45

[1]FAA APO Aviation Forecasts Fiscal 1984-1995

"An indication of the growth in the demand for air traffic control and navigation services by general aviation is the significant growth in the number of aircraft equipped with sophisticated avionics. This trend is most pronounced for piston aircraft and rotorcraft. For example, for the period 1977 through 1981, the piston fleet population grew 19 percent, while the number of aircraft equipped with transponders grew 46 percent, and the number equipped with Instrument Landing Systems (ILS) grew 31 percent. Turbojet and turboprop aircraft typically are equipped to make full use of navigation and air traffic control services. The table above shows the growth rates for 4 types of avionics equipment and the fleet by aircraft type for the period 1977 through 1981." *(FAA APO Aviation Forecasts Fiscal 1984-1995)*

Calendar 1982 General Aviation Annual Hours Flown by Weather and Light Conditions



"Over 75 percent of the total hours logged by the 1982 general aviation fleet were flown in visual meteorological (VM) conditions during the day. Aircraft flown in VM night, instrument meteorological (IM) day, and IM night conditions accounted for 11 percent, 10 percent, and 4 percent of the total hours flown, respectively." *(General Aviation and Avionics Survey—Calendar 1982)*

Non-Pilot Types[1]

Non-Pilot Totals	1978	1979	1980	1981	1982
Mechanic	228,743	237,611	250,157	262,705	277,436
Dispatcher	6,161	6,446	6,799	7,094	7,580

[1]*FAA Statistical Handbook of Aviation—Calendar 1982*

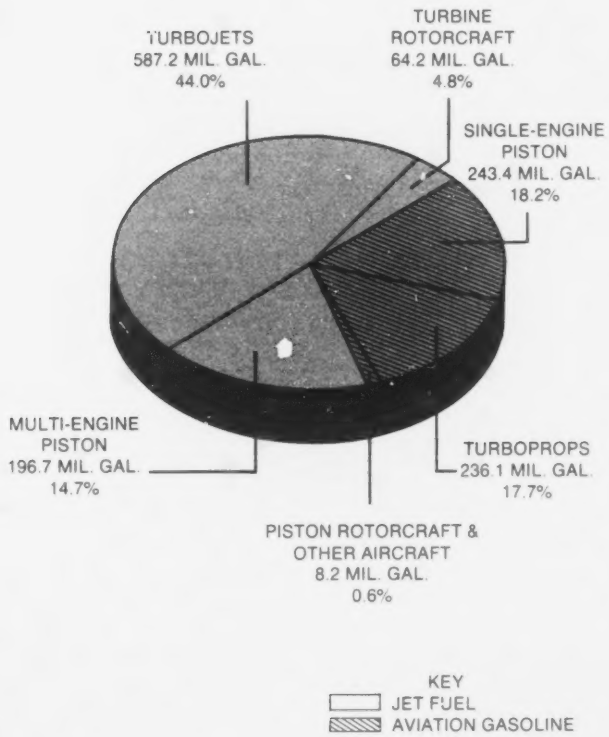
Active Pilots by Type of Certificate[2]
(thousands)

As of January 1	Total	Students	Private	Commerical	Airline Transport	Helicopter	Glider	Other	Instrument Rated (1)
Historical*									
1979	798.8	204.9	337.6	185.8	55.9	4.9	6.5	3.2	236.3
1980	814.7	210.2	343.3	182.1	63.7	5.2	6.8	3.4	247.1
1981	827.0	199.8	357.5	183.4	69.6	6.0	7.0	3.7	260.5
1982	764.2	179.9	328.6	168.6	70.3	6.5	7.4	3.0	252.5
1983	733.3	156.4	322.1	165.1	73.5	7.0	7.8	1.4	255.1
Forecast									
1984	742.3	153.8	326.9	167.7	76.8	7.4	8.2	1.5	263.7
1985	761.2	157.9	335.1	170.1	80.2	7.7	8.6	1.6	274.3
1986	790.2	171.4	343.9	172.3	83.7	8.1	9.1	1.7	285.3
1987	815.7	181.9	352.7	174.2	87.2	8.4	9.5	1.8	296.7
1988	840.2	192.1	361.0	175.9	90.7	8.7	9.9	1.9	308.5

*FAA Statistical Handbook of Aviation. Detail may not add to total because of rounding
Note: data presented as of January 1 of the given year indicates that data was accumulated from previous year
(1) Should not be added to other categories in deriving total.
[2]FAA APO Aviation Forecasts Fiscal 1984-1995

"Recent trends within the general aviation pilot population provide further evidence of this sector's changing characteristics. As of January 1, 1983, 44 percent of the licensed pilots possessed an instrument rating, compared to 32 percent in 1970. While the total pilot population declined 4 percent in 1983, the number of instrument rated pilots grew 1 percent. Also, during the period 1979 through 1983 the total pilot population declined at an annual rate of 2 percent, while the number of instrument rated pilots increased at the same rate." *(FAA APO Aviation Forecasts Fiscal 1984-1995)*

Calendar 1982 Estimated Fuel Consumption by Aircraft Type[1]



[1]*General Aviation and Avionics Survey—Calendar 1982*

General Aviation Fuel Consumption by Aircraft Type Calendar 1982[1]

Aircraft Type	Mean Rate GPH
Fixed Wing	
Piston	
1 Eng 1-3 Seats	8.30
1 Eng 4+ Seats	10.94
Total 1 Eng	10.03
2 Eng 1-6 Seats	26.14
2 Eng 7+ Seats	39.78
Total 2 Eng	32.45
Total Piston	14.70
Turboprop	
2 Eng 1-12 Seats	76.88
2 Eng 13+ Seats	214.86
Total 2 Eng	111.13
Other Turboprop	43.35
Total Turboprop	108.91
Turbojet	
2 Eng	297.77
Other	705.05
Total Turbojet	364.52
Total Fixed Wing	37.46
Rotorcraft	
Piston	14.09
Turbine	36.25
Total Rotorcraft	30.79
Other	0.00
Total Aircraft	36.64
Total Jet Fuel	159.91
Total Aviation Gasoline	14.50

[1]*General Aviation and Avionics Survey—Calendar 1982*

"The general aviation aircraft fleet consumed an estimated 1,335 million gallons of fuel during 1932, 448 million gallons of aviation gasoline and 887 million gallons of jet fuel." *(General Aviation and Avionics Survey—Calendar 1982)*

Estimated Fuel Consumed by General Aviation by Type of Aircraft[1]

(millions of gallons)

		Fixed Wing				Rotorcraft		
		Piston						
Fiscal Year	Total	Single Engine	Multi Engine	Turboprop	Turbojet	Piston	Turbine	Other
Historical*								
1979	1,299.8	296.1	241.9	192.6	489.6	18.4	60.2	1.0
1980	1,291.0	287.6	231.1	233.9	474.6	13.3	59.7	.8
1981	1,257.3	276.5	206.1	219.6	483.2	13.7	57.8	.8
1982	1,314.2	251.2	197.4	230.8	562.1	9.7	62.5	.5
1983E	1,348.5	237.0	190.8	241.8	597.2	8.3	72.9	.5
Forecast								
1984	1,422.1	240.0	197.4	263.8	632.3	8.3	79.8	.5
1985	1,500.7	248.0	203.9	285.7	667.5	8.3	86.8	.5
1986	1,617.2	260.0	210.6	307.7	737.7	6.9	93.7	.6
1987	1,700.3	275.9	217.1	329.7	772.9	6.9	97.2	.6
1988	1,755.7	295.8	223.7	351.7	773.0	6.8	104.1	.6

E—Estimate
*FAA APO Estimates
[1]*FAA APO Aviation Forecasts Fiscal 1984-1995*

Airports

Number of landing facilities in the U.S. and possessions increased by 198 in 1983 over the 1982 figure to 16,029. There are 12,653 airports, 2,918 heliports, 392 seaplane bases, 66 STOL parts, 12 ultralight flightparks, 32 glideports and seven balloonports.

The greatest growth was in privately owned facilities which went from 11,026 to 11,217. Public facilities rose to 4,812 from 4,805. But, for the 12th straight year the number of unrestricted public landing sites declined, from 6,137 in 1982 to 5,987 in 1983.

Some 335 locations were abandoned in 1983, including 83 public-use facilities—56 airports, four heliports and 23 seaplane bases.[1]

U.S. Civil and Joint-Use Airports[1]

Airports on Record with FAA Calendar 1978-1983

Year	Total	With Runway Lights	With Paved Runways	Airports of Entry
1978	14,574	4,567	5,484	70
1979	14,746	4,631	5,618	60
1980	15,161	4,738	5,833	69
1981	15,476	4,796	6,012	69
1982	15,831	4,842	6,224	63
1983	16,029			

By Type

	Total Aircraft Facilities	Airports	Heliports	Stolports	Seaplane Bases	Reported Abandonments During Year
Total						
1982	15,381	12,596	2,712	65	458	444
1983	16,029	12,653	2,918	66	392	335

By Type of Ownership

	Total Facilities	By Ownership		Paved Airports		Unpaved Airports	
		Public	Private	Lighted	Not Lighted	Lighted	Not Lighted
Total							
1982	15,831	4,805	11,026	3,896	2,328	946	8,661
1983	16,029	4,812	11,217				

Calendar 1982 by Length of Longest Runway

	Total	Under 3,000	3,000-3,999	4,000-4,999	5,000-5,999	6,000-6,999	7,000-7,999	8,000-8,999	9,000-9,999	10,000- & Over
Total	15,831	10,382	2,621	1,118	807	319	173	109	60	242

(1983 data where available)

[1] *FAA Statistical Handbook of Aviation—Calendar 1982 and FAA News Release*

Note: Contrary to most FAA statistics-gathering procedures, some 1983 information is available for airports.

Aviation Activity Summary

"Increased business use of general aviation continues to be reflected in the changing character of the fleet. The more expensive and sophisticated turbine powered part of the fixed-wing fleet is expected to almost double between fiscal 1983 and 1995. The total fleet, 78.3 percent single engine piston aircraft in 1983, will grow by only 37 percent. Fixed-wing turbine powered aircraft accounted for 4.4 percent of the fleet in 1983. By 1995, the percentage will increase to 6.3 percent."

"Aviation activity at FAA facilities reversed three consecutive years of decline in 1983. The demand for FAA operational services is anticipated to increase as a result of continued strong growth in aviation activity. Total aircraft operations at FAA towered airports are forecast to increase to 95.6 million in 1995, a 5 percent annual growth rate over the 53.3 million operations achieved in 1983.

"The increased use of avionics by commuter airlines and general aviation will contribute most of the growth in instrument operations at FAA towered airports. Instrument operations are expected to increase from 34 million operations in fiscal 1983 to 52.3 million in 1995, a 3.7 percent annual growth rate.

"The workload at the Air Route Traffic Control Centers is forecast to increase at a 3.1 percent average annual rate between fiscal 1983 and 1995. The increased demand will come primarily from commuter airlines and general aviation. Commuter aircraft handled at the Centers are projected to more than double over the next 12 years.

"In summary, aviation activity is expected to continue the upturn begun in fiscal 1983 and is expected to grow at a faster rate than the general economy. Aviation will continue to dominate all other transportation modes in the commercial intercity passenger market. Commuter airline operations and business use of general aviation are expected to experience greater growth than the larger established airlines and personal use of general aviation." *(FAA APO Aviation Forecasts Fiscal 1984-1995.)*

Aviation Activity Forecasts[1]

(Fiscal Years)

	Historical			Forecast		Percent Average Annual Growth				
	1979	1982	1983	1984	1985	79/82	82/83	83/84	84/85	83/95
Air Carrier, Domestic										
Rev. Pass. Enplanements (millions)	283.4	272.8	290.3	312.7	330.0	(1.2)	6.4	7.7	5.5	4.6
Rev. Pass. Miles (billions)	203.7	207.8	223.5	240.8	255.1	0.7	7.6	7.7	5.9	5.0
Commuter Carriers										
Rev. Pass. Enplanements (millions)	12.5	17.1	19.5	21.5	23.4	11.0	14.0	8.8	9.0	7.4
Rev. Pass. Miles (billions)	1.5	2.3	2.7	3.1	3.4	15.8	16.2	12.8	10.6	9.3
Fleet Size										
Air Carrier	2,237	2,483	2,556	2,657	2,633	3.6	2.9	4.0	(0.9)	2.2
Commuter	1,413	1,494	1,500	1,606	1,682	1.9	0.4	7.1	4.7	4.5
General Aviation (thousands)	198.8	213.2	209.8	207.0	211.0	2.4	(1.6)	(1.3)	1.9	2.6
Hours Flown (millions)										
Air Carrier	6.4	6.3	6.6	6.8	6.8	(0.5)	5.1	2.4	0.7	2.1
General Aviation	42.3	37.8	36.6	37.6	39.1	(3.4)	(3.2)	2.7	4.0	4.0

1979-83, CAB, FAA DATA
[1]*FAA APO Aviation Forecasts Fiscal 1984-95*

( ) = negative growth

Airway Activity Forecasts
(Millions)

	Historical			Forecast		Percent Average Annual Growth				
	1979	1982	1983	1984	1985	79-82	82-83	83-84	84-85	83-95
Aircraft Operations										
Air Carrier	10.4	9.0	9.7	10.1	10.2	(4.3)	6.9	4.1	1.0	1.7
Air Taxi and Commuter	4.4	5.1	5.9	6.1	6.5	5.0	14.9	3.4	6.6	4.7
General Aviation	51.7	34.2	35.3	38.5	42.4	(10.2)	3.4	9.1	10.1	6.0
Military	2.5	2.3	2.5	2.5	2.5	(2.6)	4.9	—	—	—
Total	69.0	50.6	53.3	57.2	61.6	(8.2)	5.3	7.3	7.7	5.0
Instrument Operations										
Air Carrier	10.7	9.5	10.1	10.6	10.7	(3.6)	6.4	5.0	0.9	1.8
Air Taxi and Commuter	3.7	4.6	5.3	5.5	6.0	7.5	15.4	3.8	9.1	5.3
General Aviation	17.9	13.9	14.8	16.7	18.9	(7.0)	6.1	12.8	13.2	4.8
Military	3.9	3.6	3.8	3.8	3.8	(2.5)	5.8	—	—	—
Total	36.2	31.6	34.0	36.6	39.4	(4.1)	7.5	7.6	7.7	3.7
IFR Aircraft Handled										
Air Carrier	14.0	12.7	13.3	13.8	14.1	(3.0)	4.6	3.8	2.2	1.9
Air Taxi and Commuter	2.3	3.3	3.7	4.2	4.4	12.8	11.3	13.5	4.8	6.4
General Aviation	8.8	7.5	7.8	8.6	9.0	(4.7)	3.7	10.3	4.7	4.7
Military	4.8	4.3	4.6	4.6	4.6	(3.4)	6.2	—	—	—
Total	29.9	27.8	29.4	31.2	32.1	(2.3)	5.4	6.1	2.9	3.1
Flight Services										
Pilot Briefs	18.7	17.8	16.0	17.1	18.2	(1.6)	(10.1)	6.9	6.4	4.5
Flight Plans Originated	9.5	8.5	8.1	8.8	9.3	(3.4)	(4.7)	8.6	5.7	4.3
Aircraft Contacted	10.2	9.7	8.6	8.9	9.2	(1.6)	(11.4)	3.5	3.4	1.3
Total	66.6	62.4	56.9	60.7	64.2	(2.1)	(8.8)	6.7	5.8	4.0

Source: FY 1979-83 FAA Data
(FAA APO Aviation Forecasts Fiscal 1984-95)

( ) = negative growth

"The workload at Air Route Traffic Control Centers is estimated to grow at an annual rate of 3.1 percent between 1983 and 1995, to 42.6 million aircraft handled. In 1983, 45.2 percent of the traffic handled at the Centers were air carrier flights. By 1995 only 40.1 percent of the Centers' workload is expected to be generated by air carriers; both general aviation and commuters increasing their shares of the total workload. The number of general aviation and commuter aircraft handled are forecast to increase at average annual growth rates of 4.7 percent and 6.4 percent, respectively, between 1983 and 1995. Air carrier growth will average 1.9 percent over the same time period while military operations are expected to remain constant at 1983 levels." (FAA APO Aviation Forecasts Fiscal 1984-1995)

Distribution

Business Flying is compiled and published as a membership and public information service by the **National Business Aircraft Association**. Subjects are selected as information relevant to business aviation becomes available.

Permission is granted to reprint material from ***Business Flying*** so long as the context of the information remains intact and appropriate credit is given.

Business Flying is not available by subscription. Member companies of **NBAA** may obtain additional copies at $1.00 a section postpaid. Non-member companies and individuals may obtain additional copies at $2.00 a section postpaid.

Orders should be accompanied by check or money order made payable to **NBAA**.

There is a minimum billing charge of $10.00 to cover the cost of handling bookkeeping and postage.

7M 6.84

NATIONAL BUSINESS AIRCRAFT ASSOCIATION, INC.

One Farragut Square, South
Washington, D.C. 20006
202/783-9000
Telex: 904186

member of

ilbac
international business aviation council, ltd.